

AMENDMENTS TO THE CLAIMS

1. (Original) A method for gathering performance data for interconnection services performed in a communication network, said method comprising:
capturing signaling data on a signaling network;
from the captured signaling data, generating performance data about interconnection services provided in a communication network; and
communicating said performance data to a server for storage thereon.
2. (Original) The method of claim 1 wherein said generating performance data comprises:
generating call detail record data that includes data about interconnection services.
3. (Original) The method of claim 2 wherein said call detail record data includes data identifying at least one from the group consisting of: calling number, called number, number of minutes of use (MOU), start time, end time, LRN, origination pointcode of a call (OPC), and destination pointcode of a call (DPC).
4. (Original) The method of claim 2 wherein said call detail record data includes data identifying a plurality of the group consisting of: Start Time (IAM time), ACM Time, ANS Time, REL Time, END Time (RLC time), CIC, OPC, DPC, Release Cause, Number of Calling Party Digits, Calling Party Number, Number of Called Party Digits, Called Party Number, Original Called Digits, LRN, JIP, Failed Calls Flag, Abnormal Release Flag, and Timeout Flag (Reason).
5. (Original) The method of claim 1 wherein said generating performance data comprises:
generating usage detail record data that includes data about interconnection services.
6. (Original) The method of claim 5 wherein said usage detail record data includes data identifying at least one selected from the group consisting of: number of message signaling units (MSUs) and the number of octets.
7. (Original) The method of claim 1 further comprising:
storing said performance data on a data storage device communicatively coupled to said server.

8. (Original) The method of claim 7 wherein said performance data stored on said data storage device includes data identifying one or more of the following:

number of call attempts, number of ACMs, number of call attempts answered, number of user busy calls, number of ring no answer (RNA) calls, number of normal release calls, number of abnormal release calls, number of unallocated number calls, number of address incomplete calls, number of transaction aborts, number of congested calls, number of circuit unavailable calls, number of failed transactions, number of failed calls, number of undefined release cause failed calls, number of destination out of order failed calls, average call set-up time, average call hold time, and average answer seizure ratio.

9. (Original) The method of claim 7 further comprising:

aggregating one or more said performance data stored on said data storage device to generate aggregated performance data.

10. (Original) The method of claim 9 wherein said aggregated performance data includes data identifying one or more of the following:

calling numbers, called numbers, translated numbers, and services.

11. (Original) The method of claim 1 wherein said signaling network is a Signaling System Seven based network.

12. (Original) The method of claim 11 wherein said signaling network includes a plurality of signal transfer points (STPs), and wherein said signaling data is captured from data communicated from one of said plurality of STPs to another of said plurality of STPs.

13. (Original) The method of claim 1 wherein said communication network includes one or more selected from the group consisting of:

public switched telephone network (PSTN), wireline network, wireless network, voice network, data network, general purpose processor-based information network, cable network, wide area network (WAN), the Internet, or any combination thereof.

14. (Original) The method of claim 1 further comprising:

allowing a user to query said server for said performance data for said interconnection services, thereby allowing a user to evaluate performance of interconnection services.

15. (Original) The method of claim 1 wherein said performance data includes data about at least one selected from the group consisting of: usage of said interconnection services, quality of said interconnection services, and usage of said interconnection services for intelligent networks.

16. (Original) The method of claim 1 wherein said performance data includes data about usage of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, duration of usage of interconnection services, date of use of interconnection services, called number requiring use of interconnection services, dialed number requiring use of interconnection services, start time of usage of interconnection services, and end time of usage of interconnection services.

17. (Original) The method of claim 1 wherein said performance data includes data about quality of said interconnection services, said data including data identifying at least one selected from the group consisting of number of call attempts requiring interconnection services, number of call answers when using interconnection services, number of address completes when using interconnection services, number of normal releases when using interconnection services, number of ring-no-answers when using interconnection services, number of user busies when using interconnection services, number of abnormal releases when using interconnection services, number of failed calls when using interconnection services, number of circuit unavailables when using interconnection services, number of network congestions when using interconnection services, number of network failures when using interconnection services, number of user-defined release causes when using interconnection services, duration of call setup time when using interconnection services, duration of call hold time when using interconnection services, duration of conversion time when using interconnection services, and duration of total interconnection services used.

18. (Original) The method of claim 1 wherein said performance data includes data from which information about Intelligent Network services may be determined, said data including data identifying at least one selected from the group consisting of: ISUP counts for IAM, ISUP counts for ACM, ISUP counts for ANM, ISUP counts for REL, ISUP counts for RLC, TCAP counts for LNP, number of roaming verifications, number of toll-free calls, and number of calling card calls.

19. (Original) The method of claim 1 wherein said interconnection services include:

an interconnecting carrier providing resources to interconnect a service provider's network to another network or network element.

20. (Original) The method of claim 1 wherein said interconnection services include:

providing network resources to a communication service provider to enable said communication service provider to communicatively couple a first network element to a second network element.

21. (Original) The method of claim 20 wherein said network resources includes switching resources.

22. (Original) The method of claim 1 further comprising:
correlating the captured signaling data.

23. (Original) The method of claim 22 wherein said correlating associates signaling data with its respective interconnection services.

24. (Original) The method of claim 1 wherein said server is a web server.

25. (Original) A method for providing verification of performance of interconnection services, said method comprising:

gathering data about performance of interconnection services provided in a communication network by capturing signaling data for said interconnection services on a signaling network; and

providing said performance data to one or more communication service providers.

26. (Original) The method of claim 25 wherein said data about performance comprises:

call detail record data that includes data about said interconnection services.

27. (Original) The method of claim 26 wherein said call detail record data includes data identifying at least one from the group consisting of: calling number, called number, number of minutes of use (MOU), start time, end time, LRN, origination pointcode of a call (OPC), and destination pointcode of a call (DPC).

28. (Original) The method of claim 25 wherein said data about performance comprises:

usage detail record data that includes data about said interconnection services.

29. (Original) The method of claim 28 wherein said usage detail record data includes data identifying at least one selected from the group consisting of: number of message signaling units (MSUs) and the number of octets.

30. (Original) The method of claim 25 wherein said signaling network is a Signaling System Seven based network.

31. (Original) The method of claim 30 wherein said signaling network includes a plurality of signal transfer points (STPs), and wherein said signaling data is captured from data communicated from one of said plurality of STPs to another of said plurality of STPs.

32. (Original) The method of claim 25 wherein said communication network includes one or more selected from the group consisting of:

public switched telephone network (PSTN), wireline network, wireless network, voice network, data network, general purpose processor-based information network, cable network, wide area network (WAN), the Internet, or any combination thereof.

33. (Original) The method of claim 25 wherein said providing said performance data to one or more communication service providers further comprises:

allowing said one or more service providers to query a server having said performance data stored thereon to retrieve desired performance data about said interconnection services.

34. (Original) The method of claim 25 wherein said performance data includes data about at least one selected from the group consisting of: usage of said interconnection services, quality of said interconnection services, and usage of said interconnection services for intelligent networks.

35. (Original) The method of claim 25 wherein said performance data includes data about usage of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, duration of usage of interconnection services, date of use of interconnection services, called number requiring use of interconnection services, dialed number requiring use of interconnection services, start time of usage of interconnection services, and end time of usage of interconnection services.

36. (Original) The method of claim 25 wherein said performance data includes data about quality of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, number of call answers when using interconnection services, number of address completes when using interconnection services, number of normal releases when using interconnection services, number of ring-no-answers when using interconnection services, number of user busies when using interconnection services, number of abnormal releases when using interconnection services, number of failed calls when using interconnection services, number of circuit unavailables when using interconnection services, number of network congestions when using interconnection services, number of network failures when using interconnection services, number of user-defined release causes when using interconnection services, duration of call setup time when using interconnection services, duration of call hold time when using interconnection services, duration of conversion time when using interconnection services, and duration of total interconnection services used.

37. (Original) The method of claim 25 wherein said performance data includes data from which information about Intelligent Network services may be determined, said data including data identifying at least one selected from the group consisting of: ISUP counts for IAM, ISUP counts for ACM, ISUP counts for ANM, ISUP counts for REL, ISUP counts for RLC, TCAP counts for LNP, number of roaming verifications, number of toll-free calls, and number of calling card calls.

38. (Original) The method of claim 25 wherein said interconnection services include:

an interconnecting carrier providing resources to interconnect a service provider's network to another network or network element.

39. (Original) The method of claim 25 wherein said interconnection services include:

providing network resources to a communication service provider to enable said communication service provider to communicatively couple a first network element to a second network element.

40. (Original) The method of claim 25 further comprising:
correlating the captured signaling data.

41. (Original) The method of claim 40 wherein said correlating associates signaling data with its respective interconnection services.

42. (Original) An interconnection analysis server comprising:
memory storing computer executable code, said code executable to receive performance data for interconnection services provided on a communication network; and
at least one processor for executing said computer executable code to gather said performance data at said interconnection analysis server.

43. (Original) The interconnection analysis server of claim 42 implemented as a dedicated server for gathering said performance data.

44. (Original) The interconnection analysis server of claim 42 including at least one database for storing said performance data.

45. (Original) The interconnection analysis server of claim 42 being communicatively accessible by at least one communication network service provider, wherein said at least one communication network service provider can query said server to retrieve said performance data.

46. (Original) The interconnection analysis server of claim 42 further comprising: communicative coupling to at least one processor-based monitor station, wherein said processor-based monitor station captures signaling data from a signaling network for said interconnection services.

47. (Original) The interconnection analysis server of claim 46 wherein said processor-based monitor station utilizes the captured signaling data to generate call detail records, and wherein said processor-based monitor station communicates said call detail records to said interconnection analysis server.

48. (Original) The interconnection analysis server of claim 47 wherein said call detail record data includes data identifying at least one from the group consisting of: calling number, called number, number of minutes of use (MOU), start time, end time, LRN, origination pointcode of a call (OPC), and destination pointcode of a call (DPC).

49. (Original) The interconnection analysis server of claim 46 wherein said processor-based monitor station utilizes the captured signaling data to generate usage detail records, and wherein said processor-based monitor station communicates said usage detail records to said interconnection analysis server.

50. (Original) The interconnection analysis server of claim 49 wherein said usage detail record data includes data identifying at least one selected from the group consisting of: number of message signaling units (MSUs) and the number of octets.

51. (Original) The interconnection analysis server of claim 42 further comprising: communicative coupling to at least one signaling network to capture signaling data from said signaling network for said interconnection services.

52. (Original) The interconnection analysis server of claim 42 wherein said communication network includes one or more selected from the group consisting of:

public switched telephone network (PSTN), wireline network, wireless network, voice network, data network, general purpose processor-based information network, cable network, wide area network (WAN), the Internet, or any combination thereof.

53. (Original) The interconnection analysis server of claim 42 wherein said performance data includes data about usage of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, duration of usage of interconnection services, date of use of interconnection services, called number requiring use of interconnection services, dialed number requiring use of interconnection services, start time of usage of interconnection services, and end time of usage of interconnection services.

54. (Original) The interconnection analysis server of claim 42 wherein said performance data includes data about quality of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, number of call answers when using interconnection services, number of address completes when using interconnection services, number of normal releases when using interconnection services, number of ring-no-answers when using interconnection services, number of user busies when using interconnection services, number of abnormal releases when using interconnection services, number of failed calls when using interconnection services, number of circuit unavailables when using interconnection services, number of network congestions when using interconnection services, number of network failures when using interconnection services, number of user-defined release causes when using interconnection services, duration of call setup time when using interconnection services, duration of call hold time when using interconnection services, duration of conversion time when using interconnection services, and duration of total interconnection services used.

55. (Original) The interconnection analysis server of claim 42 wherein said performance data includes data from which information about Intelligent Network services may be determined, said data including data identifying at least one selected from the group consisting of: ISUP counts for IAM, ISUP counts for ACM, ISUP counts for ANM, ISUP counts for REL, ISUP counts for RLC, TCAP counts for LNP, number of roaming verifications, number of toll-free calls, and number of calling card calls.

56. (Original) The interconnection analysis server of claim 42 wherein said interconnection services include:

an interconnecting carrier providing resources to interconnect a service provider's network to another network or network element.

57. (Original) A system comprising:

communication network over which at least one of data or voice can be communicated;

signaling network over which signaling data for said communication network is communicated;

at least one processor-based monitor for capturing signaling data from said signaling network, wherein said signaling data includes performance data for interconnection services provided on said communication network; and

at least one server to which said performance data for interconnection services are communicated from said at least one processor-based monitor, wherein said at least one server is communicatively accessible by a user to enable said user to retrieve said performance data.

58. (Original) The system of claim 57 wherein said at least one server is communicatively coupled to a communication network such that said user can communicatively access said at least one server via said communication network.

59. (Original) The system of claim 57 wherein said at least one server is a web server.

60. (Original) The system of claim 57 wherein said at least one server is coupled directly to a workstation such that said user can communicatively access said at least one server via said workstation.

61. (Original) The system of claim 57 wherein said at least one processor-based monitor utilizes the captured signaling data to generate call detail records, and wherein said at least one processor-based monitor communicates said call detail records to said at least one server.

62. (Original) The system of claim 61 wherein said call detail record data includes data identifying at least one from the group consisting of: calling number, called number, number of minutes of use (MOU), start time, end time, LRN, origination pointcode of a call (OPC), and destination pointcode of a call (DPC).

63. (Original) The system of claim 57 wherein said at least one processor-based monitor utilizes the captured signaling data to generate usage detail records, and wherein said at least one processor-based monitor communicates said usage detail records to said at least one server.

64. (Original) The system of claim 63 wherein said usage detail record data includes data identifying at least one selected from the group consisting of: number of message signaling units (MSUs) and the number of octets.

65. (Original) The system of claim 57 wherein said communication network includes one or more selected from the group consisting of:

public switched telephone network (PSTN), wireline network, wireless network, voice network, data network, general purpose processor-based information network, cable network, wide area network (WAN), the Internet, or any combination thereof.

66. (Original) The system of claim 57 wherein said performance data includes data about usage of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, duration of usage of interconnection services, date of use of interconnection services, called number requiring use of interconnection services, dialed number requiring use of interconnection services, start time of usage of interconnection services, and end time of usage of interconnection services.

67. (Original) The system of claim 57 wherein said performance data includes data about quality of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, number of call answers when using interconnection services, number of address completes when using interconnection services, number of normal releases when using interconnection services, number of ring-no-answers when using interconnection services, number of user busies when using interconnection services, number of abnormal releases when using interconnection services, number of failed calls when using interconnection services, number of circuit unavailables when using interconnection services, number of network congestions when using interconnection services, number of network failures when using interconnection services, number of user-defined release causes when using interconnection services, duration of call setup time when using interconnection services, duration of call hold time when using interconnection services, duration of conversion time when using interconnection services, and duration of total interconnection services used.

68. (Original) The system of claim 57 wherein said performance data includes data from which information about Intelligent Network services may be determined, said data including data identifying at least one selected from the group consisting of: ISUP counts for IAM, ISUP counts for ACM, ISUP counts for ANM, ISUP counts for REL, ISUP counts for RLC, TCAP counts for LNP, number of roaming verifications, number of toll-free calls, and number of calling card calls.

69. (Original) The system of claim 57 wherein said interconnection services include:

an interconnecting carrier providing resources to interconnect a service provider's network to another network or network element.

70. (Original) A method for providing verification of performance of interconnection services provided in a communication network, wherein a service provider provides desired networking services to a user, and wherein said service provider utilizes interconnection services of at least one interconnecting carrier to provide the desired networking services to said user, said method comprising:

capturing signaling data on a signaling network for said interconnection services of said at least one interconnecting carrier; and

storing to a computer readable media data about the performance of said interconnection services, wherein said data is determined at least in part from the captured signaling data.

71. (Original) The method of claim 70 wherein said data about performance comprises: call detail record data that includes data about said interconnection services.

72. (Original) The method of claim 71 wherein said call detail record data includes data identifying at least one from the group consisting of: calling number, called number, number of minutes of use (MOU), start time, end time, LRN, origination pointcode of a call (OPC), and destination pointcode of a call (DPC).

73. (Original) The method of claim 70 wherein said data about performance comprises:

usage detail record data that includes data about said interconnection services.

74. (Original) The method of claim 73 wherein said usage detail record data includes data identifying at least one selected from the group consisting of: number of message signaling units (MSUs) and the number of octets.

75. (Original) The method of claim 70 wherein said signaling network is a Signaling System Seven based network.

76. (Original) The method of claim 75 wherein said signaling network includes a plurality of signal transfer points (STPs), and wherein said signaling data is captured from data communicated from one of said plurality of STPs to another of said plurality of STPs.

77. (Original) The method of claim 70 wherein said communication network includes "one or more selected from the group consisting of:

public switched telephone network (PSTN), wireline network, wireless network, voice network, data network, general purpose processor-based information network, cable network, wide area network (WAN), the Internet, or any combination thereof.

78. (Original) The method of claim 70 further comprising:
providing said performance data to one or more communication service providers.

79. (Original) The method of claim 70 wherein said performance data includes data about usage of said interconnection services, said data including data identifying at least one selected from the group consisting of: number of call attempts requiring interconnection services, duration of usage of interconnection services, date of use of interconnection services, called number requiring use of interconnection services, dialed number requiring use of interconnection services, start time of usage of interconnection services, and end time of usage of interconnection services.

80. (Original) The method of claim 70 wherein said performance data includes data about quality of said interconnection services, said data including data identifying at least one selected from the group consisting of number of call attempts requiring interconnection services, number of call answers when using interconnection services, number of address completes when using interconnection services, number of normal releases when using interconnection services, number of ring-no-answers when using interconnection services, number of user busies when using interconnection services, number of abnormal releases when using interconnection services, number of failed calls when using interconnection services, number of circuit unavailables when using interconnection services, number of network congestions when using interconnection services, number of network failures when using interconnection services, number of user-defined release causes when using interconnection services, duration of call setup time when using interconnection services, duration of call hold time when using interconnection services, duration of conversion time when using interconnection services, and duration of total interconnection services used.

81. (Original) The method of claim 70 wherein said performance data includes data from which information about Intelligent Network services may be determined, said data including data identifying at least one selected from the group consisting of: ISUP counts for IAM, ISUP counts for ACM, ISUP counts for ANM, ISUP counts for REL, ISUP counts for RLC, TCAP counts for LNP, number of roaming verifications, number of toll-free calls, and number of calling card calls.

82. (Original) The method of claim 70 further comprising:
correlating the captured signaling data.

83. (Original) The method of claim 82 wherein said correlating associates signaling data with its respective interconnection services.